

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) A method for the production of metal chips comprising the steps of:
 - i) providing a mixture of a metal alloy powder with a foaming agent powder, said foaming agent having a given decomposition temperature above which the foaming agent decomposes into gas, and said powders comprising finely dispersed solid particles;
 - ii) pre-compacting the mixture of step i);
 - iii) heating the pre-compacted mixture of step ii) to a temperature below said decomposition temperature and at which permanent bonding of the particles can occurs;
 - v) hot compacting the mixture obtained in step iii) for producing a compacted body made of a metal matrix embedding the foaming agent; and
 - vi) reducing the compacted body into metal fragments and thereby obtaining foamable metal chips.
2. (original) A method as defined in claim 1, wherein the step i) of providing the metal alloy powders and the foaming agent powder comprises the step of:
-disintegrating metal scraps, metal particles or metal chips into said metal alloy powder.
3. (previously presented) A method as defined in claim 1, comprising, after step vi), the steps of:
-heating the foamable chips to a temperature below a liquidus temperature of said metal alloy and sufficient to make the metal chips plastic; and

-extruding the heated metal (chips) body for producing a foamable metal wire.

4. (original) A method as defined in claim 3, comprising after the step of extruding, the step of:

cutting the wire into smaller foamable wire segments.

5. (previously presented) A method as defined in claim 1 for producing porous metal pellets, comprising the additional step of:

vii) heating the foamable metal chips obtained in step vi) to a temperature above said decomposition temperature of the foaming agent.

6. (original) A method as defined in claim 5, comprising, prior to step vii) of heating the metal foamable metal chips, the step of:

-mixing said foamable metal chips with other powders.

7. (original) A method as defined in claim 6, wherein the other powders are made of refractory material powders.

8. (original) A method as defined in claim 7, comprising, prior to mixing the foamable metal chips with the refractory material powders, the steps of:

-heating the foamable metal chips to a temperature below a liquidus temperature of said metal alloy and sufficient to make the metal chips plastic; and

-shaping the metal chips into metal granules.

9. (original) A method as defined in claim 8, wherein the metal granules are spherical.

10. (original) A method as defined in claim 9, wherein the step of shaping the metal chips into metal granules comprises the steps of:

- dispersing the heated chips as a monolayer on a flat heated surface;
- applying a heated plate over said monolayer, and shaping the metal granules by simultaneously applying pressure with the heated plate and performing circular movement with the same.

11. (previously presented) A method as defined in claim 9, comprising, after step vi) of disintegrating, the step of:

- classifying the metal chips by grain sizes.

12. (original) A method as defined in claim 11, wherein the grain sizes range from 1,5mm to 40mm.

13. (previously presented) A method as defined in claim 12, wherein the metal powders are aluminum alloy powders.

14. (previously presented) A method as claimed in claim 13 wherein the foaming agent is selected from the group consisting of TiH₂ and CaCO₃.

15. (previously presented) A method as claimed in claim 14, wherein the step v) of hot compacting is hot rolling.

16. (previously presented) Use of porous metal pellets as defined in claim 10, as fillers for a material selected form the group consisting of a polymeric material, a soundproof material, a fireproof material and a shock absorption material.

17. (original) Use of porous metal pellets as defined in claim 16, wherein the polymeric material is a resin.

18. (original) A method for the production of a metal product comprising the steps of:

- a) providing metal pieces and reducing said metal pieces into smaller metal particles;
- b) mixing the metal particles with an additive having a decomposition temperature that is greater than a solidus temperature of said metal particles;
- c) pouring the mixture of step b) into a closed volume metal shell having a given thickness and providing the metal shell with at least one passage for gases to escape;
- d) increasing the density of the metal shell with powder by applying pressure;
- e) heating the metal shell to a temperature above a temperature equal to said solidus temperature minus 50-60 degrees Celsius and below said decomposition temperature of the additive, and immediately applying pressure on the metal shell sufficient to compress the metal particles and to create micro shear conditions between the metal particles so as to obtain a dense metal product.

19. (currently amended) A method as defined in claim 18, comprising, prior to step e) d), the step of:

pre-compacting the mixture of step b) c).

20. (previously presented) A method as defined in claim 19, wherein the additive is a foaming agent that decomposes into gas at a temperature greater than said decomposition temperature.

21. (original) A method as defined in claim 20, wherein the foaming agent is selected from the group consisting of TiH₂ and CaCO₃
22. (previously presented) A method as defined in claim 21, comprising, after step e), a step of heating the dense metal product, with or without the metal shell, to a temperature greater than the decomposition temperature of the foaming agent, for obtaining a foam metal product.
23. (original) A method as defined in claim 19, wherein the step of pre-compacting the mixture is performed by vibration.
24. (previously presented) A method as defined in claim 23, wherein, in step e), the pressure is applied by hot rolling the metal shell.
25. (previously presented) A method as defined in claim 24, wherein, in step e), the hot rolling is performed with a compression force sufficient for obtaining a 95-100% dense metal product.
26. (previously presented) A method as claimed in claim 25, wherein the closed volume metal shell comprises two continuous longitudinal main surfaces with side edges, and is deformable in a cross direction.
27. (original) A method as defined in claim 26, wherein the continuous surfaces are at least partially closed at their side edges, said partial closing being made by a process selected from the group consisting of welding, bending, clamping and bonding.

28. (previously presented) A method as claimed in claim 27, wherein the hot rolling of step e) is performed by at least one roll moving along one of said surfaces of the shell.

29. (previously presented) A method as defined in claim 19, wherein the closed volume metal shell is obtained by providing a flat pan with a lid; and wherein step c) comprises the steps of pouring the mixture into the pan and closing the lid of the pan leaving said at least one passage.

30. (previously presented) A method as claimed in claim 29, wherein step d) of increasing the density of the metal shell comprises the step of cold rolling the metal shell.

31. (previously presented) A method as defined in claim 30, wherein the metal pieces are made of recycled aluminium scraps.

32. (previously presented) A method as defined in claim 31, wherein the smaller particles of step a) are metal chips, a powder of finely dispersed metal particles, agglomerated powders or particles.

33. (new) A method for the production of a foamable metal material, comprising the steps of:

- (a) mixing metal particles with a foaming agent;
- (b) packing of the mixture obtained in step a) into a closed volume metal shell;
- (c) pre-compaction of the mixture in the closed volume metal shell, thereby obtaining a pre-compacted mixture;

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(d) heating of said metal shell and pre-compacted mixture to a temperature lower than a temperature of decomposition of the foaming agent, and applying pressure for sintering the mixture and the metal shell, and obtaining a sandwich structure comprising the mixture sandwiched between two layers of metals.

34. (new) A method as defined in claim 33, wherein the temperature of decomposition of the foaming agent is lower than the melting point of the metal particles.

35. (new) A method as defined in claim 34, wherein the foaming agent is selected from the group consisting of TiH_2 and $CaCO_3$.

36. (new) A method as defined in claim 33, comprising, after step d), the step of heating said sandwich structure to a temperature exceeding the temperature of decomposition of the foaming agent, for producing a metal foam material.

37. (new) A method as defined in claim 33, wherein the pre-compaction c) is performed by cold rolling, static compaction or vibration.

38. (new) A method as defined in claim 33, wherein the pressure in step d) is provided by hot rolling process and is sufficient to achieve a 95 to 100% dense metal product.

39. (new) A method as defined in claim 33, wherein the shell is deformable both in longitudinal and in cross section directions.